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LISTS OF SPECIES

Fish, Corumbataí and Jacaré-Pepira river basins, São Paulo State, Brazil

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Abstract
Fish were studied in two river basins (Corumbataí and Jacaré-Pepira) subjected to strong human pressure, in the interior of the State of São Paulo, southeastern Brazil. In the Corumbataí basin, four sites were sampled: Cabeça river, Lapa stream, Passa-Cinco river, and Corumbataí river; in the Jacaré-Pepira basin, three sites were sampled: Tamanduá stream, Jacaré-Pepira river, and Água Branca stream. A total of 4,050 specimens belonging to 48 species and 13 families were caught and analyzed.

Introduction
The Neotropical region is particularly interesting because it is a refuge for fish speciation (Mazzoni and Lobón-Cerviá 2000). In Brazil, the second most important basin in terms of area and fish diversity is the Paraná-Paraguai-Uruguai (Prata) basin, which contains approximately 500 species. The State of São Paulo contains about 30% of the known Brazilian fish species, with 261 freshwater species distributed as follows: 53% Siluriforms, 35% Characiforms, 4% Gymnotiforms, 5% Cyprinodontiforms, and 3% Perciforms. This State is located in the upper Paraná river basin, which contains 22 fish families and approximately 166 fish species (Castro and Menezes 1998). Although ecological knowledge of stream fish assemblages is still incipient, the frequency of species occurrence appears to be influenced by the preference of species for certain sites, the ontogenetic stage of the individuals, and the seasonal plasticity of each habitat (Lemes and Garutti 2002a).

Materials and Methods
A total of 12 samples were made bimonthly, from February to December, in 2000 and 2001. We determined two study sites: 1. Corumbataí river basin, with four sample sites: 1.a. Cabeça river (22º22'49" S, 47º39'55" W), 1.b. Lapa stream (22º23'38" S, 47º47'16" W), 1.c. Passa-Cinco river (22º25'02" S, 47º42'47" W), and 1.d. Corumbataí river (22º08'15" S, 47º39'37" W); and 2. Jacaré-Pepira river basin, with three sample sites: 2.a. Tamanduá stream (22º21'17" S, 47º45'00" W), 2.b. Jacaré-Pepira river (22º17'53" S, 48º11'35" W), and 2.c. Água Branca stream (22º26'20" S, 48º47'45" W). Both drainage systems exhibited low similarity due to a great habitat variability and differences in environmental conditions. An altitude tropical climate (CWa) predominates in the region, which is characterized by mean annual temperatures ranging from 18°C to 22°C, with warm wet summers and dry winters. Rainfall varies from 1,400 mm, in the upper regions, to 1,100 mm. The study area of approximately 2,700 km² comprises part of the municipalities of Itirapina, Brotas, São Pedro, Dois Córregos, Santa Maria da Serra, Torrinha, São Carlos, Analândia, Ipeúna, Mineiros do Tietê, Rio Claro, Barra Bonita, Corumbataí, and Itaqueri da Serra (see maps in Gomiero and Braga 2005). At each sample point, individuals were collected in many parts of the river, using 5 m long by 1.5 m high gill nets with mesh sizes of 1.5; 2.0; 2.5, and 3.0 cm, measured between adjacent knots. Each set of nets totalized 30 m^2. Whenever possible, 1.5 m high purse seines with mesh sizes of 1.5 cm, sieves, and traps were also used. The sampling work was standardized to a constant time and number of fishing instruments employed at each point. In the laboratory, fishes were identified up to the lowest taxonomic level. Voucher specimens of each species are deposited in the fish collection of the Departamento de Zoologia of the Universidade Estadual Paulista, Rio Claro (SP).

Results and Discussion
A total of 4,050 specimens belonging to 48 species and 13 families were caught and analyzed. Families and species names, with their respective occurrence sites, are listed in Table 1. The fish families recorded in this study were: Characidae, Crenuchidae, Parodontidae, Curimatidae,

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Anostomidae, Erythrinidae, Sternopygidae, Pimelodidae, Doradidae, Callichthyidae, Loricariidae, Poeciliidae, and Cichlidae (Appendix I). The taxonomic predominance of the orders Siluriformes and Characiformes in the Corumbataí river basin and Jacaré-Pepira river basin agrees with the expected ichthyofaunistical composition for non-estuarine rivers in the Neotropical region (Lowe-McConnell 1987).

As observed by Uieda (1984) in the Tabajara stream (SP), the most abundant species were found at the sample sites throughout the study period, with the families Characidae and Loricariidae being the most frequent. Lemes and Garutti (2002b) and Casatti et al. (2001) observed a similar species distribution pattern in streams of the Paraná river basin, with the predominance of Siluriformes and Characiformes. The species *Serrasalmus spilopleura* Kner, 1858, *Aequidens portoalegrensis* (Hensel, 1870), *Moenkhausia sanctae-filomenae* (Steindachner, 1907), *Moenkhausia intermedia* (Eigenmann, 1908), *Gymnotus carapo* Linnaeus, 1758, *Leporinus lacustris* Amaral Campos, 1945, *Piabina argentea*, *Pimelodus maculatus* Jardine & Schomburgk, 1841, *Prochilodus lineatus* Steindachner, 1881 and *Pseudopimelodus zungaro* (Humboldt & Valenciennes, 1821) were collected by Barrella et al. (1994) in the Jacaré-Pepira river. However, these species were not collected in this study, most likely because of the more restricted collection area or possibly due to alterations in the ichthyofauna.

Table 1. Fish species from the Corumbataí (*) and Jacaré-Pepira (**) river basins.

CHARACIFORMES

PARODONTIDAE
Apareiodon piracicabae (Eigenmann, 1907) (*) (**)
Apareiodon ibitiensis Campos, 1944 (*)
Parodon nasus Kner, 1859 (*)
CURIMATIDAE
Steindachnerina insculpta (Fernández-Yépez,1948) (*) (**)
Cyphocarax modestus (Fernández-Yépez, 1948) (*) (**)
ANOSTOMIDAE
Leporinus friderici (Bloch, 1794) (*) (**)
Leporinus obtusidens (Valenciennes, 1836) (*)
Schizodon nasutus Kner, 1858 (**)
ERYTHRINIDAE
Hoplias cf. *malabaricus* (Bloch, 1794) (*) (**)
CRENUCHIDAE
Characidium aff. *zebra* (Eigenmann, 1909) (*) (**)
CHARACIDAE
Tetragonopterinae
Astyanax altiparanae Garutti & Britski, 2000 (*) (**)
Astyanax scabripinnis (Jenyns, 1842) (*) (**)
Astyanax fasciatus (Cuvier, 1819) (*) (**)
Astyanax eigenmaniorum (Cope, 1894) (*) (**)
Astyanax sp. (*)
Piabina argentea Reinhardt, 1867 (*)
Bryconamericus sp. (*)
Cheirodontinae
Serrapinus cf. *notomelas* (Eigenmann, 1915) (*) (**)
Serrapinus heterodon (Eigenmann, 1915) (*) (**)
Odontostilbe microcephalus Eigenmann, 1907 (*)
Salminae
Salminus hilarii Valenciennes, 1850 (**)
Cynopotaminae
Galeocharax knerii (Steindachner, 1879) (**)
Acestrorhynchinae
Acestrorhynchus lacustris (Lütken, 1875) (**)

SILURIFORMES

PIMELODIDAE
Rhamdia quelen (Quoy & Gaimard, 1824) (*) (**)
Pimelodella sp.1. (*) (**)
Pimelodella sp.2. (**)
Imparfinis mirini Haseman, 1911 (*)
LORICARIIDAE
Loricariinae
Rineloricaria latirostris (Boulenger, 1900) (*) (**)
Rineloricaria sp. (*)
Loricaria piracicabae Ihering, 1907 (**)
Hypoptopomatinae
Hisonotus sp. (*) (**)
Corumbataia cuestae Britski, 1997 (*)
Hypostominae
Hypostomus strigaticeps (Regan, 1908) (*) (**)
Hypostomus ancistroides (Ihering, 1911) (*) (**)
Hypostomus albopunctatus (Regan, 1908) (*)
Hypostomus sp.1. (*) (**)
Hypostomus sp.2. (*) (**)
Hypostomus regani (Ihering, 1905) (*) (**)
Hypostomus cf. *regani* (Ihering, 1905) (**)
DORADIDAE
Rhinodoras dorbignyi (Kner, 1855) (**)
CALLICHTHYIDAE
Corydoras flaveolus Ihering, 1911 (*) (**)
Corydoras aeneus (Gill, 1858) (*)
Hoplosternum littorale (Hancock, 1828) (*)

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GYMNOTIFORMES

STERNOPYGIDAE
Eigenmannia cf. *trilineata* (López & Castello, 1966) (*)

PERCIFORMES

CICHLIDAE
Geophagus brasiliensis Kner, 1865 (*) (**)
Oreochromis niloticus (Linnaeus, 1758) (*)

CYPRINODONTIFORMES

POECILIIDAE
Poecilia reticulata (Peters, 1860) (*)
Phalloceros caudimaculatus (Hensel, 1868) (*) (**)

Acknowledgements
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Literature Cited

Barrella, W., Beaumord, A. C. and Petrere Jr., M. 1994. Comparacion de la comunidad de peces de los rios Manso (MT) y Jacare pepira (SP), Brasil. Acta Biol. Venez. 15(02): 11-20.

Casatti, L., Langeani, F. and Castro, R. M. C. 2001. Peixes de riacho do Parque Estadual Morro do Diabo, bacia do alto rio Paraná, SP. Biota Neotropica. 1: 1-15.

Castro, R. M. C. and Menezes, N. A. 1998. Estudo diagnóstico da diversidade de peixes do Estado de São Paulo. In: Castro, R. M. C. (ed.) Biodiversidade do Estado de São Paulo: síntese do conhecimento ao final do século XX. Volume 6: Vertebrados. São Paulo: Fapesp, Biota: 3-13.

Gomiero, L. M. and Braga, F. M. S. 2005. The condition factor of fishes from two river basins in São Paulo state, Southeast of Brazil. Acta Scientiarum. 27(01): 73-78.

Lemes, E. M. and Garutti, V. 2002a. Ecologia da ictiofauna de um córrego de cabeceira da bacia do Alto rio Paraná, Brasil. Iheringia. 92(3): 69-78.

Lemes, E. M. and Garutti, V. 2002b. Ictiofauna de poção e rápido em um córrego de cabeceira da bacia do Alto rio Paraná. Comun. Mus. Ciênc. Tecnol. 15(2): 175-199.

Lowe-McConnell, R.H. 1987. Ecological studies in tropical fish communities. Cambridge University, Cambridge.

Mazzoni, R. and Lobón-Cerviá, J. 2000. Longitudinal structure, density and production rates of a neotropical stream fish assemblage: the river Ubatiba in the Serra do Mar, southeast Brazil. Ecography. 23: 588-602.

Uieda, V. S. 1984. Ocorrência e distribuição dos peixes em um riacho de água doce. Rev. Brasil. Biol. 44(2): 203-213.

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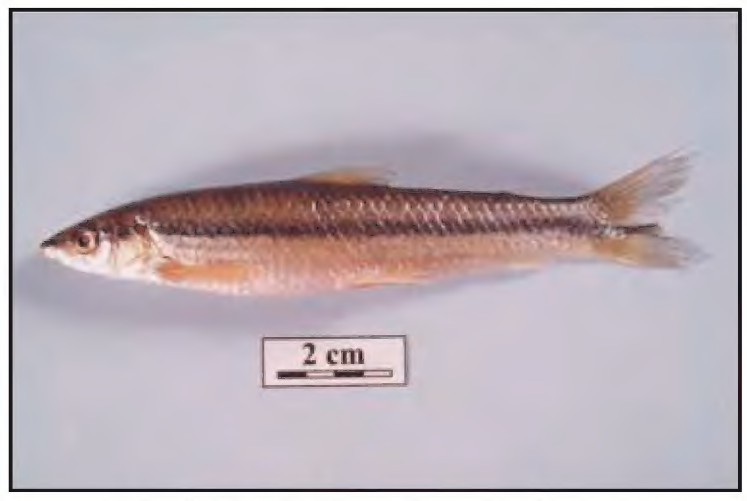
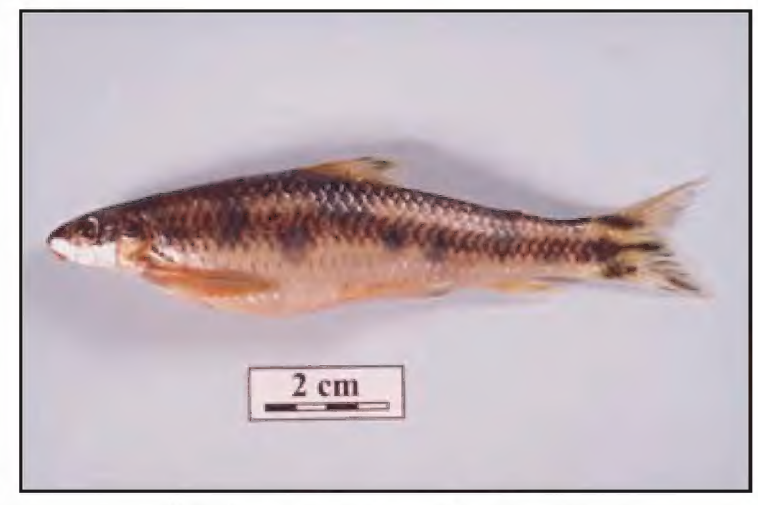
Appendix I. Fish species from the Corumbataí and Jacaré-Pepira river basins.

CHARACIFORMES
PARODONTIDAE



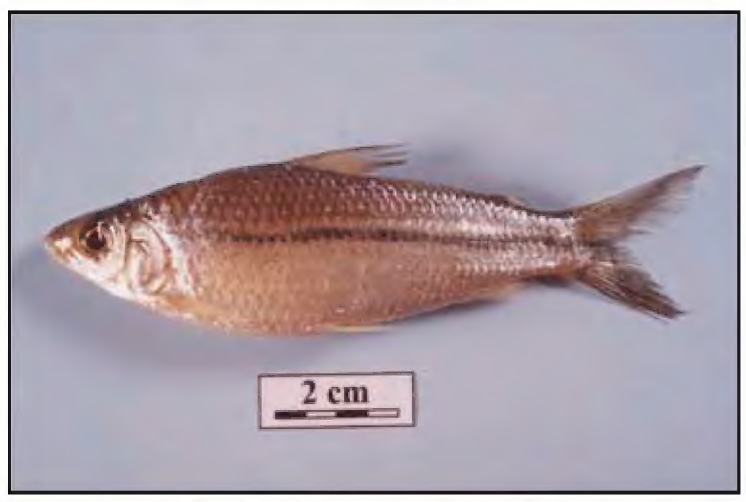
1. *Apareiodon piracicabae*



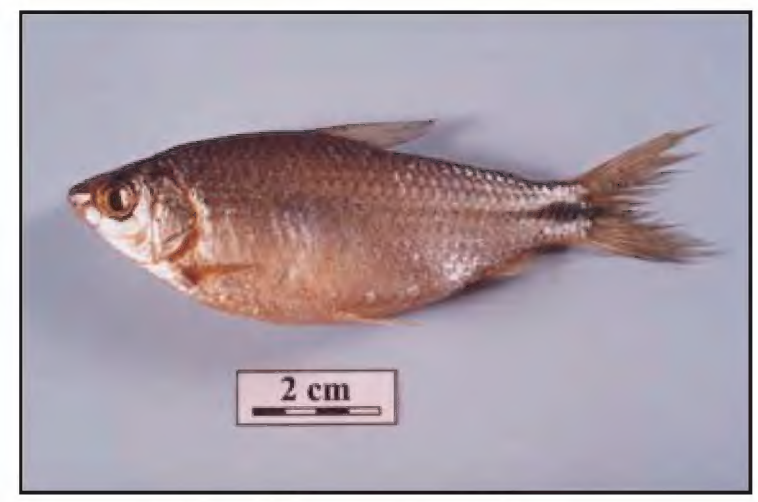
2. *Apareiodon ibitiensis*

3. *Parodon nasus*

CURIMATIDAE



4. *Steindachnerina insculpta*



5. *Cyphocarax modestus*

ANOSTOMIDAE

6. *Leporinus friderici*

7. *Leporinus obtusidens*

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8. *Schizodon nasutus*

ERYTHRINIDAE

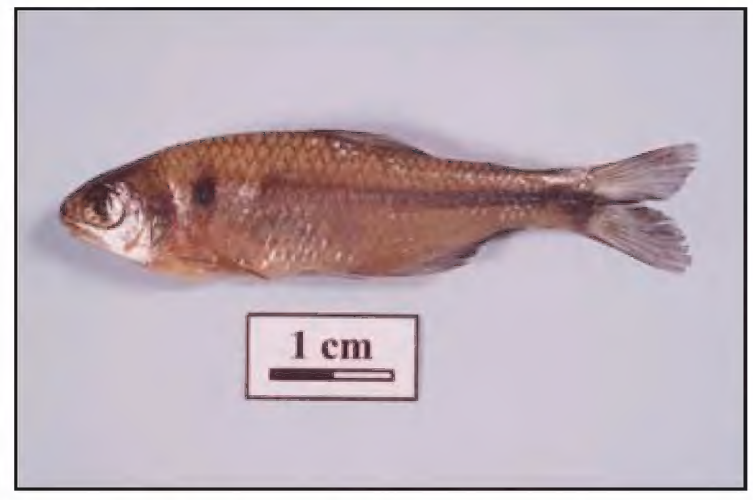
9. *Hoplias* cf. *malabaricus*

CRENUCHIDAE

10. *Characidium* aff. *zebra*

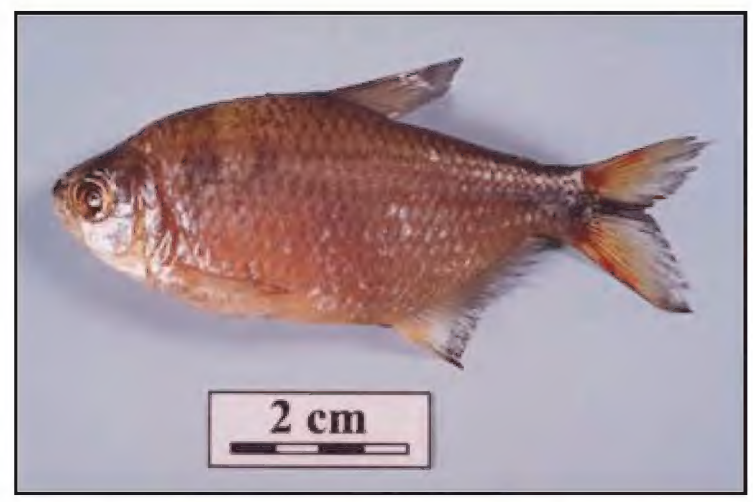
CHARACIDAE
Tetragonopterinae

11. *Astyanax altiparanae*

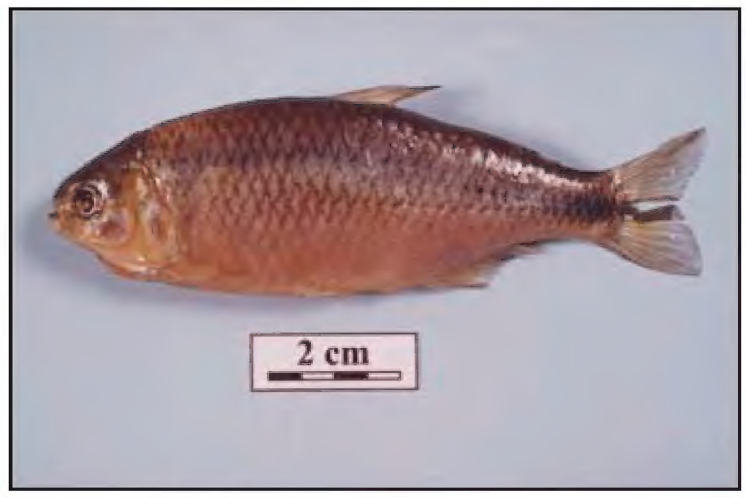


12. *Astyanax scabripinnis*

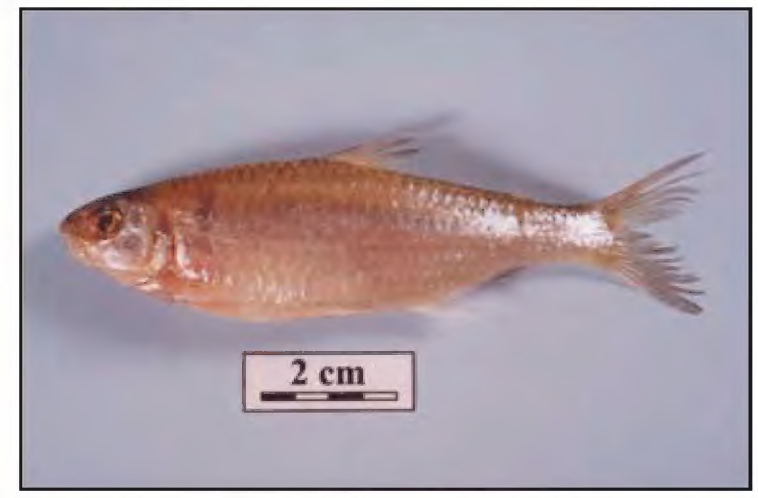
13. *Astyanax fasciatus*



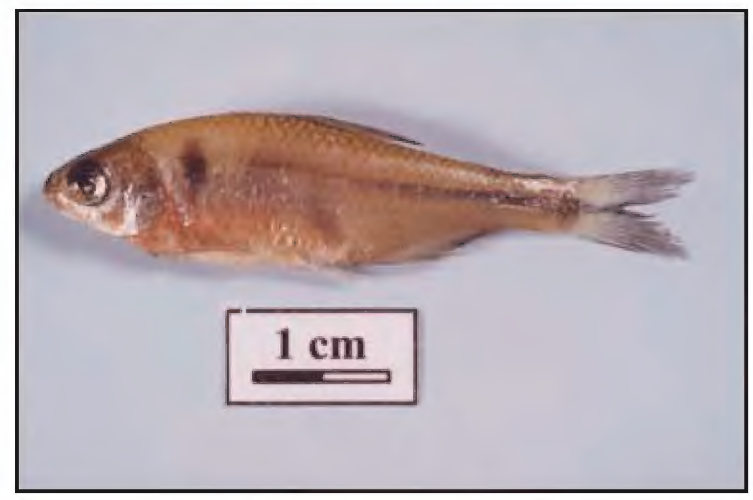
14. *Astyanax eigenmaniorum*



15. *Astyanax* sp.



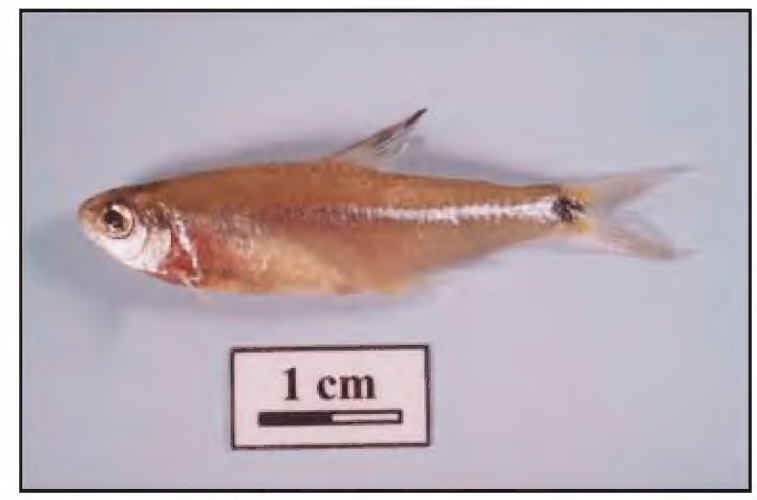
16. *Piabina argentea*



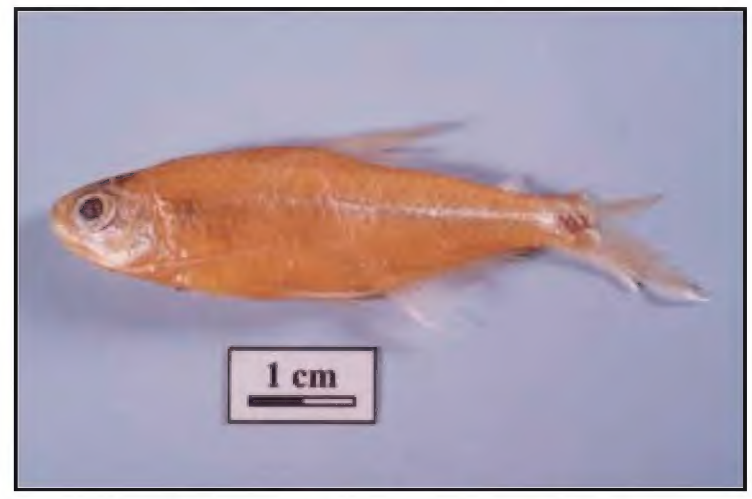
17. *Bryconamericus sp.*

Cheirodontinae

18. *Serrapinus* cf. *notomelas*



19. *Serrapinus heterodon*



20. *Odontostilbe microcephalus*

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Salminae

21. *Salminus hilarii*

Cynopotaminae

22. *Galeocharax knerii*

Acestrorhynchinae

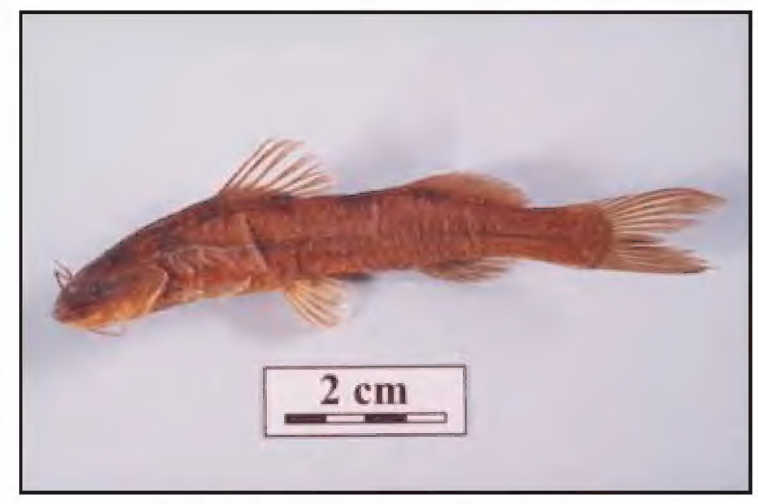
23. *Acestrorhynchus lacustris*

SILURIFORMES
PIMELODIDAE

24. *Rhamdia quelen*

25. *Pimelodella* sp.1.

26. *Pimelodella* sp.2.



27. *Imparfinis mirini*

LISTS OF SPECIES

LORICARIIDAE

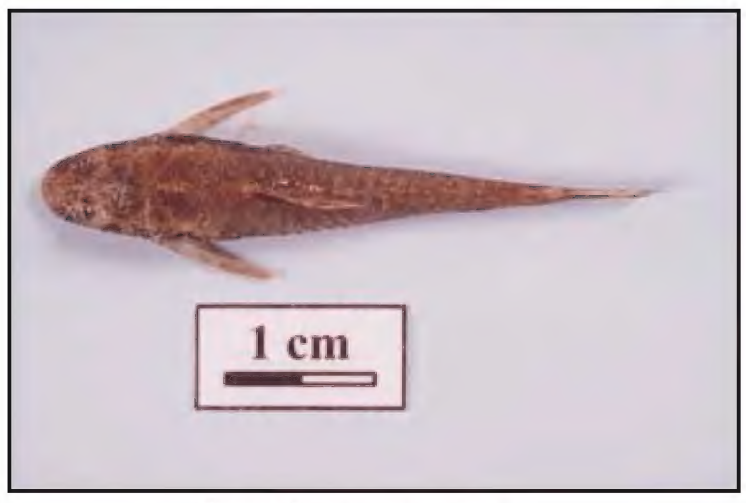
Loricariinae

28. *Rineloricaria latirostris*

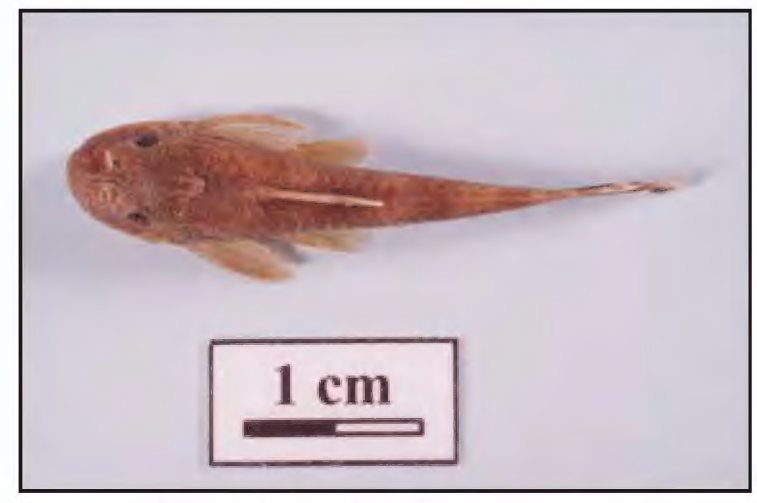
29. *Rineloricaria* sp.

30. *Loricaria piracicabae*

Hypoptopomatinae



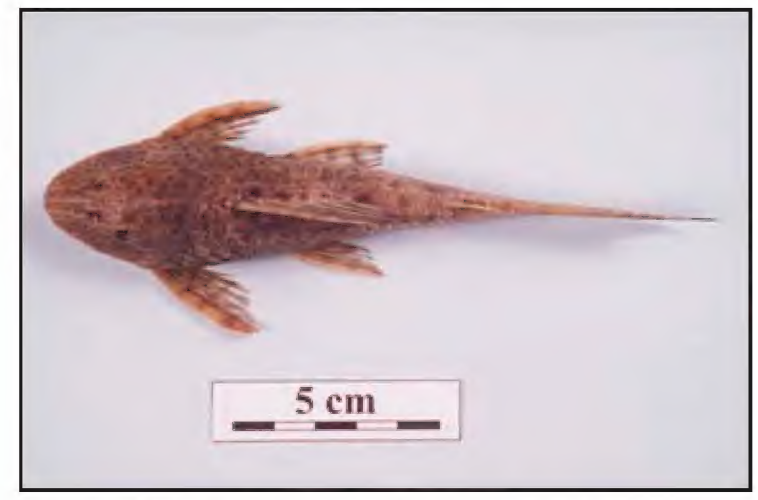
31. *Hisonotus* sp.



32. *Corumbataia cuestae*

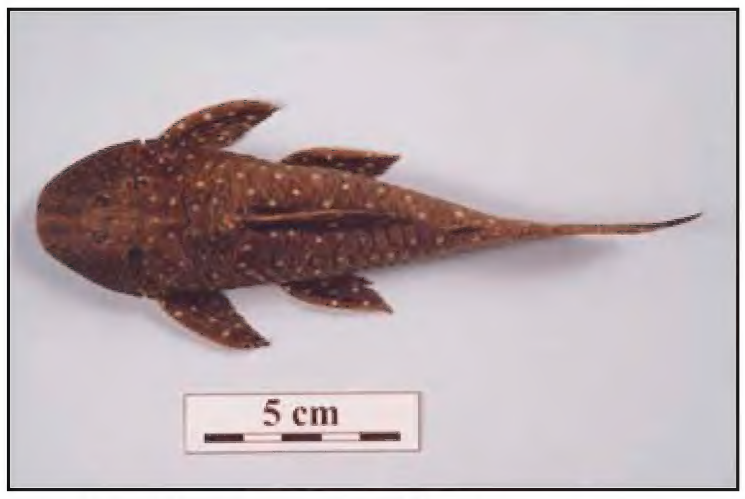
Hypostominae

33. *Hypostomus strigaticeps*



34. *Hypostomus ancistroides*

LISTS OF SPECIES

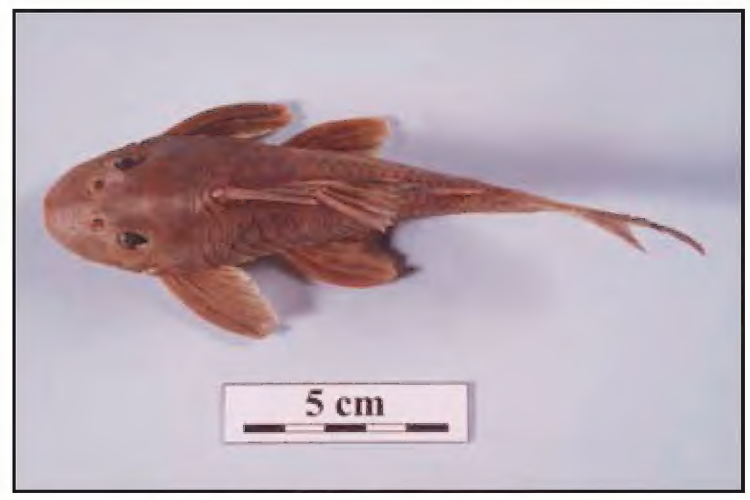


35. *Hypostomus albopunctatus*

36. *Hypostomus* sp.1

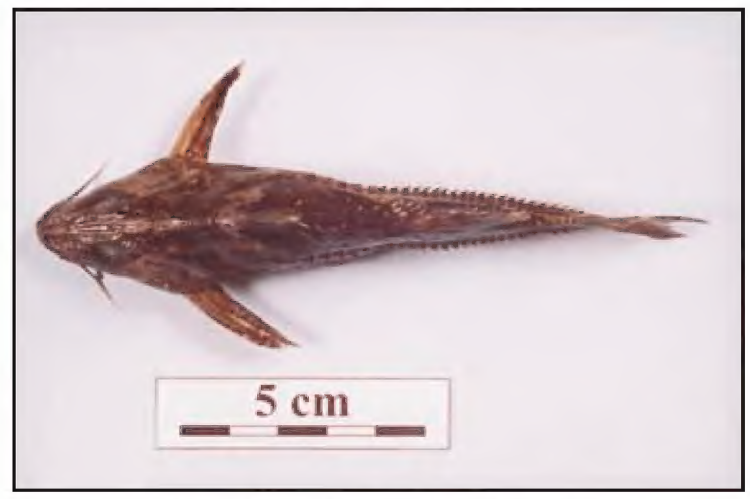
37. *Hypostomus* sp.2

38. *Hypostomus regani*



39. *Hypostomus* cf. *regani*

DORADIDAE



40. *Rhinodoras dorbignyi*

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CALLICHTHYIDAE

41. *Corydoras flaveolus*

42. *Corydoras aeneus*

43. *Hoplosternum littorale*

GYMNOTIFORMES
STERNOPYGIDAE

44. *Eigenmannia* cf. *trilineata*

PERCIFORMES
CICHLIDAE

45. *Geophagus brasiliensis*

46. *Oreochromis niloticus*

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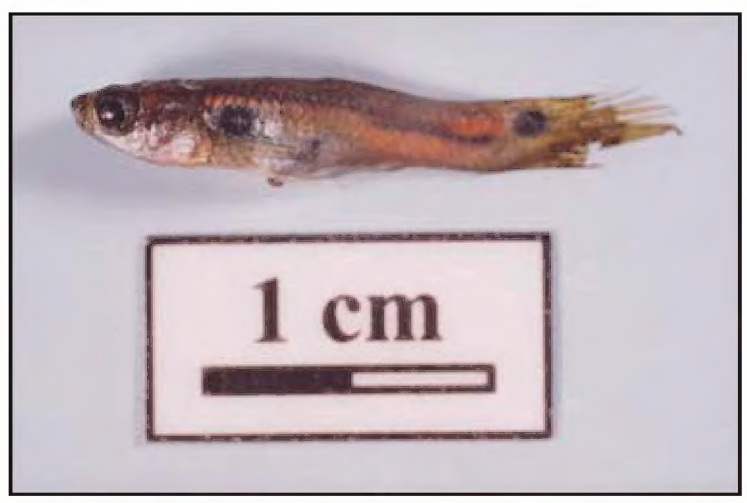
CYPRINODONTIFORMES
POECILIIDAE



47. *Poecilia reticulata*

48. *Phalloceros caudimaculatus*